

Cooperative Extension Work

In Agriculture and Home Economics

State of Michigan

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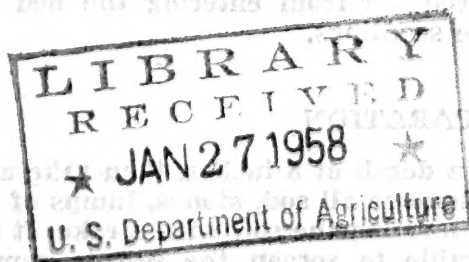
U. S. Department of Agriculture

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Forestry

HOW TO ESTABLISH AN EVERGREEN TREE NURSERY BED*



WHEN TO PLANT

Most evergreen tree seed can be sown in the spring, as soon as good early gardening weather arrives (May 20th to June 15th). White pine and white spruce germinate better if fall sown just before the ground freezes, generally late in October.

THE NURSEY SITE SHOULD

1. Have good air and water drainage.
2. Be located on a sand or sandy loam soil in the open, not in the shade of trees or buildings.
3. Be near a source of water.
4. Not be on an area where sod has just been turned under.
5. Be low in fertility — high fertility encourages "damping off."

SIZE OF THE BED

The outside width of the bed will be determined by the width of $\frac{1}{4}$ inch or $\frac{1}{2}$ inch mesh hardware cloth available for cover. This is usually 30 inches, but may be up to 42 inches. Greater widths are difficult to weed. The length should be such as to produce a bed to cover approximately 12 square feet ($2\frac{1}{2}' \times 5'$). It is advisable for beginners to start with a bed of this size, however, the bed can be made any length desired.

MAKING THE FRAME AND COVER

The frame for the $2\frac{1}{2}' \times 5'$ seedbed can be constructed of used or scrap lumber. A single frame of boards 8 inches wide or 2 identical frames made of 4 inch boards can be used. The sides should be 4 inches below and 4 inches above the ground.

The cover is made by nailing or stapling lath on the hardware cloth. There should be a space between each lath as wide as a piece of lath. This is to provide partial shade for the tender seedlings. The purpose of the hardware cloth is to prevent birds and rodents from entering the bed and destroying the seedlings.

SOIL PREPARATION

Space to a depth of 8 inches, then rake and level carefully. Remove all sod, stones, lumps of dirt and roots while leveling the soil with a rake. It is sometimes desirable to screen the soil to remove the coarse material. The soil should be firmed by placing a wide board on the surface and stepping on it. The board is moved around until the whole bed has been firmed and made as level as possible.

SEEDING

After the soil has been properly prepared and the frame installed the seed should be sown evenly over the surface of the bed. (See chart for recommended quantity.) Make a seeder by punching holes—from the inside—in the metal top of a glass jar. The holes should be large enough to allow the seed to sift through freely as the jar is used as a shaker. When sowing the seed hold the jar 6 to 10 inches above the bed and broadcast evenly by sifting both lengthwise and crosswise over the area. The seed should then be covered with $\frac{1}{8}$ to $\frac{1}{4}$ inch of sterile sand taken from a depth of 18 inches or more below the ground surface. (This sand is usually free of weed seeds and plant diseases commonly found in surface soils.) After the seed has been properly covered with sand the bed should be covered with one thickness of wet (pre-soaked) clean burlap. This helps to retain soil moisture and also prevents the seed from being washed out by heavy rainstorms. As soon as the seed germinates (10 days to 2 weeks) the burlap should be carefully removed and the lath cover installed over the bed.

WATERING

The bed should be watered so as to keep the soil damp. Check the bed daily by scratching in the sand with your finger to determine whether or not water is required. Excessive moisture encourages "damping off" and it is advisable to remove the screen shade, or the top one-half of a split frame bed, temporarily following heavy rains in order to allow the sun and wind to hasten surface drying.

WEEDING

Pull all weeds as soon as they appear. If this is done daily at the time of inspecting for water requirements weeds will never become a problem. On small beds the use of chemical weed killers is not recommended.

DAMPING OFF

This is a fungus disease and the most serious threat to the success of your seedbed. The fungi are present in the top 6 inches of most agricultural soils and develop in periods of warm wet weather. It is likely to attack 4 to 6 weeks following germination of the seedlings. This disease can be easily recognized by the withering and bending over of the stem just above the ground line.

At the first sign of damping off the shade frame should be removed and not replaced until the soil is dry to a depth of $\frac{1}{8}$ inch.

FALL AND WINTER CARE OF THE BED

In September the screen shade should be removed at half-day intervals to "harden" the seedlings. This should be continued through mid-October, at which time the beds should be mulched for the winter.

Sprinkle a layer of long clean loose straw (free of weed seeds) over the bed to a depth of about 4 inches and then replace the screen cover and fasten it securely to prevent mice from entering the bed.

FUTURE CARE

As soon as frost danger has passed in the following spring the screen and mulch should be removed and the bed weeded and watered as during the first season. Do not shade the beds during the second and ensuing years. Water frequently enough to prevent wilting.

The open bed might require some protection in the form of a fence to exclude chickens, dogs, and cats.

After two growing seasons some species will be large enough for field planting. Other species that do not develop quite as rapidly and do not crowd each other due to growth habits or sparse seeding might be left in the bed an additional year. Another procedure is to lift the two-year seedlings and transplant them in a line-out bed. These are placed in rows 12 to 24 inches apart and spaced 4 inches apart in the rows. They may be left for one to two years or until large enough for field planting. Line-out beds should be cultivated and watered as needed.

THE PRUNING OF RED AND SCOTCH PINE

FOR CHRISTMAS TREES

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The use of pine trees for Christmas decoration has been increasing yearly for the past ten to twelve years. Many growers are now planting Scotch Pine and Red Pine for this purpose. The popularity of the pines hinges primarily on their inherent ability to hold their needles for long periods when exposed to high temperatures and low humidity.



WHY PRUNE

Observation of a number of plantations indicates that a high percentage of the trees in a plantation will not make desirable Christmas trees unless given some cultural treatment. The pines are inclined to grow too rapidly making the distance between whorls too great. This develops a sparsely branched tree that is referred to as being "too leggy." Some branches may grow more rapidly than others producing an irregularly shaped tree.

Examination of a number of plantations indicates that only 30 to 35 per cent of the trees of Red Pine or Scotch Pine will make good merchantable trees without any pruning. The remaining 65 to 70 per cent will be unshapely and of inferior quality. Experience has shown that with proper pruning and cultural work we can expect to raise this to 90 to 95 per cent of high quality trees. There will still be from 5 to 10 per cent of the trees that will never be satisfactory for Christmas tree use. (These can be cut and sold as boughs.)

On the terminal stem of pine trees we normally find from 4 to 7 buds, one terminal, and 3 to 6 lateral buds. Experience shows that proper pruning can stimulate bud development to where there will be from 10 to 22 buds. This, of course, serves to increase the density of the foliage.

WHEN TO PRUNE

Pruning should be started in a plantation when the trees have reached a height of 18 to 24 inches and continued on as an annual job until the trees are ready to harvest. Not all trees will need pruning each year; only those that appear to be growing too rapidly or are becoming unshapely will need attention.

The time of year to prune is in late spring or early summer, usually the last two weeks in June and the first week in July. This is the time when new buds are just forming and height growth is not quite complete. It is also the time when new buds will form near cut ends of pruned branches. If the pruning is delayed until after the new growth has hardened, but set may be unsatisfactory.

HOW TO PRUNE

The pruning technique is aimed at shaping the tree to a conical outline, reducing excessive height growth, and producing a tree with dense foliage free of noticeable holes.

Most any sharp bladed tool may be used such as a jack knife, hand pruning shears, grass shears or sheep shears; however, for a large scale operation it has been found that hedge shears with 8 or 9 inch blades are most efficient.

Only growth of the current season should be pruned or sheared unless some radical change in the tree form is desired. First, attention should be given to the terminal shoot. It should be cut back to give 9-12 inches of growth. Next, the laterals of the terminal whorl should be cut 3-4 inches shorter than the terminal.

Next, new growth of lateral branches should be pruned to give the tree a conical outline. If one or more laterals are seriously out of line it may be necessary here to remove some of the old growth back to the next whorl of branches. It may also be desirable to prune back some of the larger branches at the base of the tree to reduce the overall width of the crown.

